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- (51) International Patent Classification⁷: **C12N 9/00** (74) Common Representative: **NOVOZYMES A/S**; Krogshoejvej 36, DK-2880 Bagsvaerd (DK).
- (21) International Application Number: **PCT/DK2003/000914** (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
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- (71) Applicant (*for all designated States except US*): **NOVOZYMES A/S [DK/DK]**; Krogshoejvej 36, DK-2880 Bagsvaerd (DK).
- (72) Inventors; and
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- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
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 - *with (an) indication(s) in relation to deposited biological material furnished under Rule 13bis separately from the description*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **POLYPEPTIDES HAVING CELLOBIOHYDROLASE II ACTIVITY AND POLYNUCLEOTIDES ENCODING SAME**

(57) Abstract: The present invention relates to polypeptides having cellobiohydrolase II activity and polynucleotides having a nucleotide sequence which encodes for the polypeptides. The invention also relates to nucleic acid constructs, vectors, and host cells comprising the nucleic acid constructs as well as methods for producing and using the polypeptides.

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GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
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ning of each regular issue of the PCT Gazette.*

(54) Title: POLYPEPTIDES HAVING CELLOBIOHYDROLASE II ACTIVITY AND POLYNUCLEOTIDES ENCODING
SAME

(57) Abstract: The present invention relates to polypeptides having cellobiohydrolase II activity and polynucleotides having a nu-
cleotide sequence which encodes for the polypeptides. The invention also relates to nucleic acid constructs, vectors, and host cells
comprising the nucleic acid constructs as well as methods for producing and using the polypeptides, e.g. for producing ethanol from
biomass or for shuffling of DNA.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/DK 03/00914

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>TEERI, TUULA T. ET AL: "Homologous domains in Trichoderma reesei cellulolytic enzymes: Gene sequence and expression of cellobiohydrolase II"</p> <p>GENE, vol. 51, no. 1, 1987, pages 43-52, XP002282656 the whole document -& DATABASE GENBANK [Online] 17 April 1993 (1993-04-17) Database accession no. AAA34210 XP002946156 63% identity in 477 aa overlap with SEQ ID NO 2 abstract</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/--</p>	1-22

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the International filing date but later than the priority date claimed

- "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the International search

2 June 2004

Date of mailing of the international search report

01 10. 2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/DK 03/00914

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 114 158 A (CHEN HUIZHONG ET AL) 5 September 2000 (2000-09-05) abstract column 8, line 15 - line 30 ---	1-22
X	WO 91/17244 A (NOVONORDISK AS) 14 November 1991 (1991-11-14) page 16; example 2 ---	1-22
X	EP 0 214 971 A (ALKO AB OY) 25 March 1987 (1987-03-25) claims ---	1-22
X	EP 0 851 031 A (ROEHM ENZYME FINLAND OY) 1 July 1998 (1998-07-01) claims -----	1-22

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK 03/00914

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-22(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: claims 1-22 (partially)

The polypeptide of SEQ ID NO: 2 and the corresponding polynucleotide of SEQ ID NO: 1. Methods of production and uses of said polypeptide and polynucleotide.

Invention 2: claims 1-22 (partially)

The polypeptide of SEQ ID NO: 4 and the corresponding polynucleotide of SEQ ID NO: 3.
Methods of production and uses of said polypeptide and polynucleotide.

etc. etc...

Invention 13: claims 1-22 (partially)

The polypeptide of SEQ ID NO: 26 and the corresponding polynucleotide of SEQ ID NO: 25.
Methods of production and uses of said polypeptide and polynucleotide.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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